

COMMUTER AIR

March 15, 1981

Volume 3, Number 3

CPTs and the Small Commuter

by Douglas D. Gabrielle

Until very recently, the use of either a Cockpit Procedures Trainer (CPT) or flight simulator by commuters has been virtually non-existent. The cost of motion-based simulators is prohibitive, and reluctance of the FAA to allow flight checks in a CPT has kept most commuters out of these units as well.

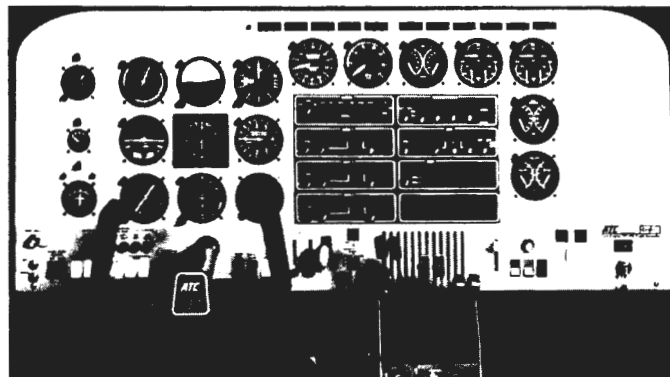
This is beginning to change for some pressing economic reasons. While the CPTs are not yet approved for flight checks, they can be used as training devices, as defined under Part 135, saving thousands of dollars for commuters that use them.

Recent advances in simulation technology have resulted in simulator/cockpit procedure trainers which are highly effective in the training environment. Several units are on the market, and any of them would be beneficial to a commuter operation. But they fall into two distinct families according to Part 135; CPTs which are "typed" to a particular aircraft type (i.e. Twin Otter, Shorts 330), and CPTs which represent an aircraft group (i.e. Cessna 400 series, Piper Chieftain, etc.)

In terms of operator usage, the FAA approvals are virtually equal. However, operators should be aware that Class CPTs are available (and can do the job) for one-tenth the price of a Type CPT (i.e. a Class CPT typical price is \$25K to \$30K, whereas a Type CPT typically costs \$250K to \$350K).

An in-house Class CPT (as defined in Part 135) will offer small commuter operators tremendous capability at low cost. In fact, an operator can afford to make almost unlimited training available to his pilots.

If the operator obtains a service



Analog Training Computers' (ATC) 810 is a highly flexible multi-engine cockpit procedures trainer in use today by many commuter operators.

policy, maintenance costs are fixed. Actual operating costs are about the same as a good sized light bulb. Based on 1,000 hours per year, maximum maintenance cost won't exceed \$1.00 per hour of use. This means a typical multi-engine CPT can be operated for just over a dollar an hour plus whatever value you assigned to depreciation.

To help set up a training program, make sure that a copy of Advisory Circular 8450.322 is available. It will provide the guidelines needed to implement an "Aircraft Class" CPT training program. With a proper unit, 70-80% of initial training and up to 100% of recurrent training can be done in the CPT.

Considering the hourly operating cost of aircraft, the rapidly escalating cost of fuel and the scheduling problems attendant with pulling an aircraft out of service for training missions, the Class CPT becomes more than just a viable investment—it becomes essential to profitability.

More important in the long run are the significant safety advantages of a Class CPT. A CPT allows practice in many procedures that are either unsafe or impossible in the air. Practic-

ing sudden engine failures in a turbo-charged piston twin is very tough on the engines. Practicing single-engine IFR approaches and missed approaches puts pilots and equipment in jeopardy.

It is impossible to simulate a split flap condition in flight. Yet to ignore training in these areas could lead to catastrophe at a later date. A good "aircraft class" cockpit procedures trainer allows pilots to stay proficient in all of these areas and many more at minimal cost and without risk of personal injury or damage to the equipment. Aircraft could remain available for service, TBO is not degraded and pilots are better prepared than they would have been with in-flight training.

In a good Class CPT, pilots will have practiced everything from Vmc demonstrations (they can even wait until the break to recover, just to see what will happen—something which would *never* be done in the airplane), to engine fires, engine failures and split flaps.

If you operate a mix of turbine and piston aircraft, your turbine pilots can still do most of their training in a

Continued on p. 42

CPTS

Continued from p. 30

piston Class CPT. Only those procedures relating specifically to turbines, such as start-up and shutdown would need to be done in the aircraft.

Many commuters, including Air Nebraska, will be training turbine pilots in an Analog Training Computers ATC-810, and piston Class CPT. Other commuter operators have ordered ATC-810 "Aircraft Class" CPT, including Scenic Airlines and Comair.

One approach to simulator training is to send pilots to schools equipped with an appropriate simulator or CPT. Many are very good, but the combination of travel expense and training expense may be prohibitive. Initial training could cost an operator \$3,000-\$4,000 per pilot. This, obviously, would be practical only if the operator has no turnover. Co-op purchase of a unit with other operators can help mitigate this cost.

For the small commuter, this tends to guide the choice of unit. There are some interesting aircraft Type CPT's available now, but the cost can run in excess of a quarter million dollars. The Class CPT's can be purchased for around \$30,000 dollars. For any operator, they offer full capability at a very affordable price.

An operator about to purchase this type of trainer should make sure the unit has the following features:

Basic Approvals

The unit should carry FAA approval for 100% of allowable simulation time under FAR Parts 61 and 141. A unit that does not carry these approvals will have only limited use in a commuter operation. Having these approvals also provides the operator with some flexibility. He can rent time on his CPT more easily and will have a larger potential market if he sells the unit. Many commuters started as FBO operations, and these companies could make extensive use of a 141-approved CPT in their flight training operation.

Under Part 141 a student may receive five hours of training towards his private, 40 hours out of 190 toward the commercial and 15 of 35 hours toward his instrument rating in a fully approved Class CPT. Time could also be sold on the CPT for instrument currency. Three of six hours and all six approaches may be accumulated in a Class CPT. Additionally, an instrument competency check may be done entirely in a Class CPT.

Realism

The selected training device (CPT) must provide realistic simulation of control loading, trim and rudder pedal feel in addition to instrument responses and multi-engine emergencies.

Dynamic Feedback

While a CPT does not offer a motion base, there is a feature you should look for that will enhance the realism of the training experience: dynamic feedback. Make sure the unit you purchase has servo motor-driven feedback in the rudder pedals. This gives the rudders a realistic feel. A power loss should demand heavy rudder application, as it does in an airplane.

Real Navigation

The better units have real navigation, allowing you to use your own Jepp charts and approach plates.

Fuel Management

For the most part, a Class simulator will meet your needs very well. A pilot will not have any trouble transferring his knowledge from the Class CPT to the airplane. For fuel management exercises, a good CPT can be ordered with either a two-tank or four-tank system. This allows you to maintain the appropriate procedures for the aircraft you operate.

Approval Guide

The FAA requires documentation on the CPT's ability to perform the maneuvers the operator wants to employ. Approvals are obtained through your local GADO.

In addition to obtaining maneuver approvals the GADO will require a function test of the unit on a regular basis. For some units this involves elaborate electrical test equipment and someone who knows how to use it. Instead, look for self-test diagnostic capability here, which allows anyone to do the required testing in minutes, using nothing more than a standard volt-meter.

Service Policy

A manufacturer's service policy will assure you of minimal maintenance costs and accurate budgeting. Make sure this policy is renewable.

The acquisition of an appropriate Class CPT could well be the least expensive and quickest way for an operator to upgrade training while improving bottom line. In addition to the benefits already discussed, the Class CPT can be used to refine a pilot's normal operating techniques.

The FAA is becoming more receptive to the use of training devices. Most initial and all recurrent training can be taken in them. We know of one instance where a waiver was granted allowing an entire check ride to be given in a Class CPT.

The shape of things to come? Perhaps. Check rides will be the frosting on the cake. **CA**